Paediatric Pain Management: Using Complementary and Alternative Medicine

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Abstract:
Children feel acute pain, and many have chronic pain. Babies and children may be at higher risk of chronic pain sensibilities because of their growth mechanisms than adult's .Acute and chronic pain must be handled to reduce the suffering of children and avoid complications of potential pain. Full and complementary (CAM) treatment should be taken into consideration in the management of acute and chronic paediatric pain in compliance with a biopsychosis view point .Although the literature is minimal for paediatric pain, hypnotherapy, acupuncture and music therapy are the most reliable treatments. The therapeutic advantages of yoga, massages, humor therapy and the use of biologically-oriented treatments are also shown.
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Pain in children:

Children of all ages are facing pain. Acute pain, including a venipuncture, immunization and common childhood misfortunes, may take the form of diagnostic and treatment interventions like falls to the playground (1). Some kids have chronic pain or diseases, such as children's cancers or young arthritis. Many healthy children may suffer from a severe degree of functional pain, including chronic headaches, abdominal pain, and limb pain. Often, these children have no symptoms of illness, however, neurosensitive pain control mechanisms seem to be damaged (2).

Some children may be additionally vulnerable to pain, such as premature infants enduring a variety of painful treatments, often without appropriate analgesia. Both the sheer number of experiences with pain and the vulnerability of children make them especially in need of effective pain control (3). Unfortunately, many children and teenagers are being treated inadequately for acute and chronic pain.

While children were once believed to be less prone to pain than adults due to underdeveloped neural networks, pain during childhood is now considered to be associated with increased reactivity or stress responses (4). Children tend to be born with fully developed pain transmitting systems but not fully developed pain inhibitory mechanism, offering potential for pain susceptibility to the development of even short painful episodes. Repeat, acute pain encounters are likely to contribute to core neural changes in neonatal pain management settings that can contribute to subsequent pain sensitivity and cognitive effects (5).

Studies have shown that untreated pain in babies, especially preterm pains, has severe short-term and long-term implications. Moreover, until early adulthood, the nervous system of a child continues to develop. Taken together, this research indicates that it is important to find successful therapies for childhood pain to prevent chronic pain sensitivity (6).

Complementary and Alternative Medicine for Paediatric Pain:

A variety of traditional therapies for pain, such as pharmacological therapy, psychotherapy, and physical therapy, have shown a certain degree of success in children. But the current treatment of paediatric pain also leaves much to be desired. It is estimated that, despite traditional therapies, (7) between 15 per cent and 30% of children experience chronic pain, and many are still experiencing acute pain that could be better controlled. As acceptance of the biopsycho-social pain paradigm has increased, so our awareness of how non-conventional medication treatments and solutions can work on the mind and body to alleviate pain has increased (8).

A recent increase in the popularity of complementary and alternative medicine (CAM) for pain and illness in adults and children underscores a shift towards approaches that may complement conventional treatments. There is also a dire need for knowledge regarding the availability, efficacy and safety of such CAM modalities. In this review we hope to increase interest and awareness of CAM interventions, including the need for further research on safety and efficacy issues (9). As discussed herein, a number of CAM treatments are available for acute and chronic paediatric pain. Efficacy may vary according to the pain condition and the child's age.

CAM is characterized as therapeutic procedures which are not commonly used in traditional practice in health care. CAM treatments are divided into five groups by the National Center for Complementary and Traditional Medicine: alternative treatment methods, scientifically based exercises, body- and psychological exercises, mental-health treatments and energy therapies (10). Alternative medical systems, such as traditional Chinese medicine, are based upon full theory and practice systems. Biologically based therapies include herbal treatments, vitamins, and other healthy supplements. Methods that are manipulative and body based can include chiropractic, osteopathic manipulations, and massage (11).

Mind-Body treatments refer to a range of strategies that seek to stimulate the ability of the mind to boost physical function and alleviate symptoms such as mental healing, artistic therapies such as music, painting, or dance therapy, and spiritual activities such as meditation and prayer (12). Here, too, are the medicinal applications of hypnosis, meditation, and relaxation. Energy treatments usually apply to Reiki and the unusual use of electromagnetic fields such as pulsed fields, alternating current or direct current fields. Many of these CAM treatments aim to restore equilibrium and balance in mind and body, similar to Western medicine's goal of restoring homeostasis. (13)

Alternative treatment options

Acupuncture:

Precise analgesic mechanics were not established, but a needle stimulation is likely involving the body's nervous system, neurotransmitters, and endogenous substances. In chronic nauseas, fatigue, and a wide range of chronic pain disorders, including migraines, and endometriosis and reflex sympathetic, experiments of both children and young people have proved useful. An unregulated research combined the treatment of headaches, abdomen pain, and fibromyalgia and complicated Type I regional pain. Although the results supported the feasibility of this combined acupuncture/hypnotherapy intervention, further controlled trials are needed to establish the efficacy of this multimodal CAM intervention (14).

Only an acupuncture study (RCT) for the persistent pain of children has been performed. Pintov et al. have offered either true acupuncture, or a 10-week placebo intervention in 22 patients, aged 7 to 15 years, with migraine headaches complaining. The research group classification blinds infants, parents and nurse raters who administered the pain medication. The true category of acupuncture reported decreases in the incidence and intensity of migraines and also increased panopioid production in both plasma and ß-endorphin levels. In the placebo party, no such changes were reported. These results are found to support the effectiveness of acupuncture when treating paediatric migraine in a rigorously designed sample (15). There are some alerts, however, including a small sample size, selective generalization due to the absence of prophylactic patients and lack of rejection rates, restricting information on the acceptability of care. Finally, there have been no follow-up results. But it is unclear whether the changes in treatment persisted or how long after the report. A RCT for acupuncture exists, but conventional acupuncture has not been used. In this study, 108 children aged 4 months to 9 years undergoing hernia repair were randomized to receive capsicum plaster at designated acupoints, or to control groups (sham capsicum plaster and placebo tape). There were no differences between groups for the first 6 hours, after which the acupoint group showed significantly less pain and opioid consumption. The results are promising and warrant further studies employing acupressure and acupuncture for acute pain (16).

While acupuncture has been effectively employed with children younger than 1 year old, there are questions about the ability of children to accept needles. Preliminary studies have found that adolescents have acceptable experience, and at least one study has found that children under 6 years of age are acceptable. Kids may be less unfavorable than many adults might submit to acupuncture (17).

Biological dependent therapies:

A variety of studies have studied the effectiveness of sucrose in early neonatal phase for acute pain. The literature promotes the use of sucrose, typically delivered on a pacifier, thereby capitalizing on the advantages of non-nutrient sucking (NNS) for the physiological pain of infants including circumcision, venipuncture and heel hold. A sweetened material with or without NNS is usually as effective for circumcision as existing therapies, such as EMLA, with many studies enjoying superior benefits. In older paediatric communities suffering acute and chronic pain problems, more support for clinically validated treatments has been demonstrated. Using oral peppermint oil for treatment of irritable bowel syndrome has been shown to be successful in infants. Furthermore, two RCTs demonstrated the effectiveness and protection of a naturopathic herbal extract for ear pain associated with acute otitis media in children over the age of 5 (18). Despite these encouraging results, research on the safety and efficacy of a wider range of herbal supplements and biological-based therapies is still required, considering that many have been shown to interact adversely with other traditional medicines through pharmacodynamics or pharmacokinetic mechanisms.

Body dependent therapies:

Massage:

Massage therapy is intended to promote muscle movement, improve nutrient supply and remove waste products in the body. Massage requires potentially parasympathetic behavior and a comfortable physiological state. Massage was found to reduce pain and cortisol levels, and improve children's sleep and mood, especially for juvenile rheumatoid arthritis, cancer and fibromyalgia. A analysis of paediatric massage randomized controlled trials showed children can benefit from reduced anxiety and joint pain, and improved muscle tone, although most of the literature has low power and ambiguous procedures. In addition, limited research exists for acute paediatric pain, although one study found massage (to unaffected body parts) was effective in reducing children’s distress during burn treatment. A weakness in most massage studies is the omission of a physical contact (such as light touch) control group (19).

Kangaroo care/Touch:

In Kangaroo care, the parent keeps the infant skin-to-skin at an upright angle of 40o to 60o against his / her body and covers the infant with a blouse or shirt; a second coating can be used to provide additional warmth. Skin-to - skin touch is associated with reduction of discomfort and reduced interest in full-term and preterm infants suffering from systemic discomfort such as heel sticks. In addition, a procedure called sensory stimulation incorporating sucrose, NNS, and massage or skin contact tends to be extremely effective in minimizing pain from infant heel sticks. Swaddling also tends to have a pain-relieving effect on children. Despite the promise of kangaroo treatment and other touch-related treatments, the literature includes a range of limitations. May include difficulty with blinding raters, lack of knowledge about inter-rater reliability with regard to pain coding, and difficulty with managing the intervention group, as some carers can unwittingly provide verbal or other forms of soothing (20).

Mind-body therapies:

Meditation:

Meditation of consciousness requires active focus control right at the moment. While there are many types of meditation, a kind of meditation of mindfulness called Vipassana meditation requires a focused emphasis on the breath with the aim of stabilizing the mind and fostering calmness. It is probable that meditation on consciousness reduces pain by recognizing pain from the somatic experience by distancing yourself from it and reducing tension accordingly. Hospital treatment has been observed in people with different causes of pain and cancer to reduce pain symptoms. Meditation has many anti-stress advantages by adolescents' influence on blood pressure and heart rate. There are currently no longitudinal research that track therapy for child distress. Nevertheless, case studies show that childhood perception of nausea and epigastric pain is important (21).

Therapeutic yoga:

In order to find equilibrium of mind, body, and spirit, yoga has unique therapeutic applications. This yoga technique uses modifications for asana (body poses) to cure various diseases, such as blankets, retainers and blocks. In chronic pain and in addition to improving mood, energy, bedtime and anxiety Iyengar Yoga is particularly effective. The use of yoga by young people is associated with mood and function changes and is particularly helpful to chronic musculoskeletal disorders, headaches and stomach complaints (22). A 4 week home-practice research for children and young people with irritable bowel syndrome showed that the yoga group demonstrated substantially improved impairment, coping and anxiety rates relative to the traditional intervention control group. It is not clear, however, to which extent the participants actually performed yoga and to which extent the yoga protocol was prescribed. Five weeks of double-weekly interventions is adequate to substantially reduce and strengthen depressive symptoms through another research with college students suffering from mild depression (23).

Biofeedback:

This method uses a computer or other communication mechanism to help children handle pain sensations by raising understanding of and learning how to monitor the reaction to physiological stress. Monitored modifications may involve stiffness in your muscles, skin temperature, and response of your body, brain wave or breathing rate. In the majority of biofeedback (BFB) trials in paediatric pain, paediatric migraine and a few stress headaches have been examined. Current conceptualizations of a spectrum model in which both migraine and stress headaches include neurological and muscle elements have altered the use of BFB in children for head pain. Biofeedback can decrease migraine and anxiety pain by as much as 50%, and helps with a feeling of control as well. A well-designed RCT has linked thermal biofeedback to placebo treatment (hand cooling) and a paediatric migraine waiting list community (24). The investigators observed that 53.8 percent of the thermal biofeedback group reported a 50 percent or greater decrease in post-treatment effects and 3- and 6-month follow-ups relative to only 10 percent of the hand cooling community showing a similar decrease. During the tracking time the waiting list group made no major improvements. Results have shown to enhance thermal biofeedback in a therapeutic way and agree with the already widely available evidence for its effectiveness in paediatric migraine. Biofeedback does not have adequate cognitive skills and physiologic knowledge to control stress reactions in children 8 years and over (25).

Humor and laughter therapy:

Laughter and humor in both adults and children have been related to pain management which can have beneficial impacts on immune function. A pilot study showed that viewing a amusing video decreased discomfort in the lab and lowered stress hormone levels in children. A new analysis of pain decrease during childhood immunizations showed that using laughter could successfully divert children from the trauma of the treatment based on a variety of observational trials. Clearly further trials are needed in order for comedy to justify the use of medication (i.e.) but preliminary data for laughing and laughter for acute pain allows all children to find the same content funny? Are TV shows further successful than live shows and tales? Additional clinical study is important to determine the therapeutic advantages of chronic pain treatment in kids (26).

Music therapy:
Several reports prescribe music for paediatric acute pain therapeutically including injection, venipuncture, abortion, burn treatment and discomfort throughout operation. Calculated pullouts played on speakers or by head phones and live music are the strategies of therapeutics distribution. Most of the literature, however, lacks a clear reference to music therapy, a formal technique focused on scientific evidence. Therapists in this field are trained to help people heal from an engaging musical activity, where the patient usually is interested in the making of music (27). The results of active music therapy are found more common and calming than merely listening. Several experiments using a systematic description of active music therapy found advantages. Recent RCTs using successful music therapy have reported reduced anxiety and pain ranking in the population than a placebo group funded by parents for 108 children 4 to 13 years under venipuncture (28).

Art, dance, and aromatherapy:
Each of these procedures have been linked in observational or clinical situations with good care for certain children and with discomfort. Music as well as the use of common fragrances (such as breast milk for mothers) can be used to minimize discomfort related to unpleasant procedures like heel sticks and circumcision in babies and children. For older children and teenagers with chronic pain, art and dance care can be useful as a way to cope with and relax (29).

Conclusion:
Children and babies are particularly vulnerable to pain. During infancy and childhood there are numerous surgical treatments associated with acute pain. Many infants may have serious, difficult-to-manage problems. At least, it is advisable for health providers to investigate the possible analgesic effects of stimulation and diversion. Several Screen treatments, such as music and mood modification, provide calming and diversion. Many other methods will facilitate relaxing of the muscles and reduce the discomfort associated with pain. Fun methods to help the infant gain attention based on the curiosity and maturity stage of the infant. Controlled breathing and progressive muscle relaxation are effective for children preschool age and older, and can be used to treat acute and chronic pain. Attending school also provides a major distraction for children with chronic pain. CAM therapies provide a way to cope with the processing of discomfort and trauma. There are a number of appropriate and efficient treatments that health providers may choose to explore using standard medicine. Any of these measures differ according to the age and stage of growth of the infant. Younger children may, for example, struggle with yoga or meditation. For a wide variety of conditions and age ranges, CAM treatments are successful, but more study is needed on the basis of their effectiveness and protection. Clearly, paediatric CAM research is in its infancy and further work is required before recommendations can be made for a variety of pain states.

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